

ABSTRACT

[0045] An amplifying circuit includes a battery power source, a regulator that regulates an output of the battery power source and generates a reference voltage, and a signal ground generating device that generates and outputs a signal ground by changing the reference voltage in accordance with deterioration detected from the battery power source. An operational amplifier is provided to amplify and output a signal having prescribed waveform to be input to a speaker. The operational amplifier uses a battery power source as a driving power source of its own. The signal ground is positioned at a center of vibration amplitude of the waveform.